

Remarks

Claim 20 is added and claims 1, 5, 6, 11, 12 and 17 are amended. Claims 1 to 20 are pending in this application of which only claims 1, 5 and 17 are in independent form.

Claim 11 was rejected under 35 USC 112, second paragraph, as being indefinite because the phrase "slot controlled" was unclear. Claim 11 is amended to delete "slot" and to substitute -- piston -- therefor. The piston controls the inlet during its reciprocating movement in the cylinder. Claim 11 should now be definite as required by the statute.

Claims 1 to 4, 6 to 11 and 16 to 19 were rejected under 35 USC 103(a) as being unpatentable over Kobayashi. the following will show that claim 1, as amended, patentably distinguishes the invention over this reference.

Two-stroke engines are operated with fuel and air and, in order to ignite the fuel, it is necessary that the fuel and air be prepared so as to form an air/fuel mixture. In conventional two-stroke engines, the preparation of the air and fuel to form the air/fuel mixture takes place in a carburetor. This can be done utilizing a venturi channel. Also, the mixture preparation can take place via a nozzle which finely distributes the fuel as is the case in the applied reference, Kobayashi. The prepared air/fuel mixture is ignitable and must therefore be arranged separated from the two-stroke engine, for example, by an insulator as taught by Kobayashi.

In Kobayashi, a nozzle is provided for mixture preparation as noted in this reference starting at column 3, line 22. A needle projects into the nozzle and the nozzle opens into a mixture channel 50 which conducts the mixture to the crankcase. The nozzle and the needle must be so configured that the fuel is finely distributed in the air so that the air/fuel mixture is generated. Since the air/fuel mixture is ignitable, an insulator must be mounted between the carburetor and the two-stroke engine as noted at column 3, line 58. The fact that the carburetor prepares the fuel to an air/fuel mixture is evident from column 8, line 15, of this reference. Here, a passing of the mixture from the mixture channel 40 into the air channel 36 is made possible via the channel 38. Kobayashi therefore discloses the preparation of the fuel and combustion air to an air/fuel mixture via a nozzle in the carburetor. There is no suggestion here which could lead our person of ordinary skill to the idea of supplying the fuel in droplet form into the crankcase. Accordingly, no separate fuel inlet can be suggested in this reference. Instead, only a mixture inlet in the crankcase is provided. Also, there is no suggestion here as to how the fuel inlet could be arranged so as to be temperature noncritical and an insulating plate thereby avoided.

The applicants' invention permits the arrangement of the fuel metering device in a temperature-critical region and avoids a carburetor which requires a comparatively large amount of space for accommodating the same. According to the invention, the fuel is supplied to the two-stroke engine in droplet form or as an emulsion and is not processed in a carburetor to form an air/fuel

mixture. The preparation of the air/fuel mixture takes place first in the crankcase of the engine. In this way, no carburetor is needed. The fuel metering system in the applicants' invention supplies the fuel in droplet form which is not ignitable. For this reason, the fuel metering system can be arranged in a temperature-critical region. Accordingly, no additional insulators are required as taught by Kobayashi. Essentially, fuel and air are supplied separately to the crankcase. It is for this reason that claim 1 includes the feature and limitation of:

"a separate fuel inlet in said crankcase;" (emphasis added)

It is essential that the fuel be supplied in droplet form or as an emulsion and does not come together with the combustion air ahead of entry into the crankcase to form the air/fuel mixture. To emphasize this feature and limitation, claim 1 is amended to include the clause:

"said fuel metering system including metering means for metering fuel in droplet form or as an emulsion in dependence upon at least one of the position of said throttle element and the rpm of said engine so as to permit an air/fuel mixture to be prepared in said crankcase." (emphasis added)

Claim 1 now emphasizes the formation of the air/fuel mixture in the crankcase so that this claim should now patentably distinguish the invention over Kobayashi wherein a carburetor is used to form the air/fuel mixture.

Claim 1 was also rejected under 35 USC 103(a) as being unpatentable over Miyasaki et al. Miyasaki et al, like Kobayashi, provides for a carburetor for preparing the air/fuel

mixture. Here, as in Kobayashi, the air/fuel mixture is supplied to the crankcase of the two-stroke engine.

In Miyasaki et al, the air/fuel mixture is supplied to the crankcase (please see column 8, lines 5 and 6). The mixture is prepared in the carburetor 50 shown in FIG. 8 of this reference. As shown in this FIG. 8, a venturi is provided in the carburetor for preparing the air/fuel mixture. The supply of fuel to the crankcase in droplet form or as an emulsion is nowhere suggested in this reference.

In view of the above, applicants respectfully submit that claim 1 should now patentably distinguish their invention over both of these references and be allowable.

Claim 17 is also amended and defines the applicants' invention in a method context so that it too should now be allowable. The remaining claims 2 to 4, 6 to 16, 18 to 20 are all dependent from one of the independent claims so that these claims too should now be allowable.

The applicants appreciatively note the allowability of claim 5. Accordingly, this claim is amended herein to incorporate therein all the features and limitations of claims 1 to 4 from which it had previously depended and should now be in condition for allowance.

Reconsideration of the application is earnestly solicited.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Walter Ottesen". The signature is fluid and cursive, with the first name "Walter" and last name "Ottesen" clearly distinguishable.

Walter Ottesen  
Reg. No. 25,544

Walter Ottesen  
Patent Attorney  
P.O. Box 4026  
Gaithersburg, Maryland 20885-4026

Phone: (301) 869-8950

Date: April 21, 2005